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Gender Differences in Pain Experience and Treatment after Motor Vehicle Collisions: A Secondary Analysis of the CRASH Study

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Abstract

Purpose—Little is known about gender differences in the treatment of pain after motor vehicle collisions (MVCs) in the emergency department (ED). We aimed to describe gender differences in pain experiences and treatment, specifically the use of opioids and benzodiazepines after ED discharge, for MVC-related pain.

Methods—This was a secondary analysis of previously collected data from the CRASH studies. We included patients who were seen and discharged from the Emergency Department (ED) after a

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MVC and who were enrolled in one of two multicenter longitudinal prospective cohort studies (one Black/Non-Hispanic and one White/Non-Hispanic). First, we compared the experience of pain as defined by self-reported moderate to severe axial pain, widespread pain, number of somatic symptoms, pain catastrophizing, and peritraumatic distress between women and men using bivariate analyses. We then determined if there were gender differences in the receipt of prescription medications for post-MVC pain symptoms (opioids and benzodiazepines) using mutlivariate logistic regression adjusting for demographics, pain, and collision characteristics.

Findings—In total, 1878 patients were included: 61.4% were women. More women reported severe symptoms on the pain catastrophizing scale (36.8% vs. 31.0%, p=0.032) and peritraumatic distress following the MVC (59.7% vs. 42.5%, p<0.001), and women reported more somatic symptoms than men (median 3.9, IQR 3.7–4.0 vs. 3.3, IQR 3.1–3.5, p<0.001). Unadjusted, similar proportions of women and men were given opioids (29.2% vs. 29.7%, p=0.84). After adjusting for covariates, women and men remained equally likely to receive a prescription for opioids (RR 0.83, 95%CI 0.58–1.19). Women, however, were less likely than men to receive a benzodiazepine at discharge (RR 0.53, 95%CI 0.32–0.88).

Implications—In a large, multicenter study of ED patients treated for MVC, there were gender differences in the acute psychological response to MVC with women reporting more psychological and somatic symptoms. Women and men were equally likely to receive opioid prescriptions at discharge. Future research should investigate potential gender-specific interventions to reduce both post-traumatic distress and the risk of developing negative long-term outcomes like chronic pain.

Keywords

gender; pain; opioids; gender differences

INTRODUCTION

Injuries related to motor vehicle collisions (MVCs) account for over 4 million emergency department (ED) visits every year.[1] Post-traumatic musculoskeletal pain resulting from MVCs has potential negative outcomes including persistent pain (pain that lasts beyond the expected normal recovery time)[2] and even chronic widespread pain,[3] a condition associated with decreased physical independence as well as a lower quality of life.[4]

Based on literature supporting gender differences in a range of painful conditions such as headache, chronic pain syndromes, and musculoskeletal pain,[5] gender differences in post-traumatic pain may also exist.[6, 7] Differences in pain between women and men across conditions are extensive and include differences in the severity and intensity of reported pain, pain sensitivity, prevalence of chronic pain, pain-associated distress and anxiety, and pain-induced hyperalgesia. [5, 6, 8–10] In addition, previous data have shown gender differences in both the receipt of analgesic treatment in the emergency department and in the response to treatment that is given (e.g., opioids). [5, 11–1314, 15] Potential gender differences in pain perception, experience, treatment, and outcomes after MVCs could have important implications on the development of chronic pain and related outcomes following a traumatic event.

Post-traumatic pain is often treated with opioids after ED discharge,[16] and musculoskeletal pain (including that resulting from trauma) treated in the ED or primary care setting is often treated with opioids and/or benzodiazepines.[17, 18] Some data also suggest that there are increased rates of benzodiazepine use among patients in the months following a MVC.[19] Given the large number of opioids being prescribed in the U.S.[20] and the high prevalence of substance use disorders related to prescription opioid and benzodiazepines,[20] it is especially important to understand whether there are gender differences in the treatment response, outcomes of post-traumatic pain including persistent or chronic pain, or in effects of opioid and/or benzodiazepine use among those treated for pain from MVCs. Though not specific to post-traumatic pain, data do show that prescriptions for benzodiazepines, which have the potential for abuse and long-term withdrawal, are approximately twice as common in women than men across all clinical indications.[21]

Before we can adequately explore gender differences in the long-term outcomes of post-traumatic pain and the response of post-traumatic pain to opioids and other classes of medications, we must first better characterize gender differences in acute post-traumatic pain and its treatment.

Objectives

We aimed to describe gender differences in pain and in the prescription of opioids and benzodiazepines following a MVC. First, we described gender differences in pain experiences among patients presenting to the ED with isolated musculoskeletal pain after a MVC. Next, we compared crude rates of opioid and benzodiazepine prescriptions after MVC between women and men. Finally, we evaluated whether patient gender was associated with differential prescribing, specifically receipt of an opioid or benzodiazepine at discharge, after adjusting for pain, demographics, and collision characteristics.

PATIENTS AND METHODS

Study Population/Setting

The CRASH project is a prospective, multicenter, observational cohort study funded by the NIH to study predictors of acute and chronic musculoskeletal pain following minor MVCs.[22] This is a secondary analysis of previously collected data from two cohorts of the CRASH study, one of white/non-Hispanic patients (the European American (EA) cohort) and one of Black/non-Hispanic patients (the African-American (AA) cohort), both previously enrolled in one of two longitudinal prospective studies of patients seen and discharged from the ED after a MVC. Details of the original study methods have been previously published.[2, 22, 23] In brief, participants were screened and enrolled by trained research assistants. Screening occurred during day and evening hours based on availability of research assistants and occurred for approximately 12 to 16 hours each day at each site.[22, 23] Data were collected by trained research assistants during the ED visit using patient interview; additional data were collected from the medical record following the completion of the ED visit.

For the EA cohort, patients 18 to 65 years old presenting to one of 8 participating EDs across 4 states (Florida, Massachusetts, Michigan, and New York) within 24 hours of a

MVC from February 2009 to October 2011 were eligible for enrollment. For the AA cohort, patients 18 to 65 years old presenting to one of 13 participating EDs across 7 states (Alabama, Florida, Michigan, Pennsylvania, Washington, D.C., Massachusetts, New Jersey) within 24 hours of a MVC from 2012 to 2016 were eligible for enrollment. In both cohorts, patients were excluded if they were admitted to the hospital, had fractures with the exception of phalanx fractures, had four or more lacerations requiring sutures or one laceration greater than 20 centimeters long, or had intracranial or spinal injuries. If patients were not alert and oriented, were pregnant, were inmates, or were not fluent in English, they were also excluded. Finally, patients were excluded if they were currently taking at least 20 mg of oxycodone or an equivalent dose of another opioid. The study was IRB approved at each site and informed consent was obtained from all enrolled patients. The research was conducted in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki).

The initial EA cohort study was powered to assess genetic predictors of acute and chronic musculoskeletal pain following a MVC with a planned enrollment of 936 participants;[22] enrollment for the subsequent AA cohort study was powered based on the EA cohort.[23]

Outcomes/Definitions

Our first outcome was pain experience by gender. Data on several measures of pain experience were collected: pain intensity (numerical pain scores), presence of widespread pain (axial pain *plus* pain in an upper and lower segment *plus* pain on the left- and right-side), presence of moderate to severe axial pain (pain in the neck, back or shoulders rated as 4 or greater on a 10 point numerical rating scale), number of somatic symptoms (of 10 common post-traumatic symptoms, number of symptoms whose severity was rated equal to or greater than 1 on a 10-point numerical rating scale), score on the pain catastrophizing scale[24, 25] (a 13- item scale that assesses fear, anxiety, and helplessness in response to pain), peritraumatic distress (score of 23 or greater on the Peritraumatic Distress Inventory[26, 27]), and attitude regarding likelihood of recovery (measured by an item on the Life Orientation Test-Revised survey[28] asking participants how sure they are that they will fully recover from the accident). Survey instruments for pain catastrophizing,[24] peritraumatic distress,[27] and attitude regarding likelihood of recovery[28] have each been previously validated." Widespread pain, moderate to severe axial pain, number of somatic symptoms, score on the Pain Catastrophizing Scale, peritraumatic distress, and likelihood of recovery were measured during the initial ED visit following the MVC.

Our next outcome measure, treatment of pain, was operationalized using data on prescriptions for opioid or benzodiazepines medications given to the participant at time of discharge from the ED. Medications categorized as opioid agonists included oxycodone, hydrocodone, or combination medications including oxycodone or hydrocodone. These two medications comprise > 95% of all opioid prescriptions in our database, and lesser prescribed opioids were excluded from this analysis (e.g., tramadol, codeine, hydromorphone). Medications categorized as benzodiazepines included diazepam, lorazepam, alprazolam, and clonazepam.

Statistical analyses

First, baseline descriptive data on demographics (age, race, marital status, body mass index (BMI), smoking status, highest level of education completed, annual income, employment status) and collision characteristics (extent of vehicle damage during MVC, driver vs. passenger, speed of collision, and seat belt use) were reported by gender. Unless otherwise specified, all analyses were conducted in the combined EA and AA cohorts.

Next, to compare pain experience by gender, we used bivariate analyses to compare each measure of pain experience. Report of widespread pain, moderate to severe axial pain, pain catastrophizing score, attitude toward likelihood of recovery, and peritraumatic distress were compared between women and men using chi-square tests. Number of somatic symptoms were compared by gender using students' t-tests. In additional analyses, we stratified the entire sample by cohort (EA and AA) and then reported outcomes by gender. Within each race cohort, women and men were compared with regard to pain experiences (widespread pain, moderate to severe axial pain, number of somatic symptoms, severe symptoms on the pain catastrophizing scale, peritraumatic distress, and attitude towards likelihood of recovery).

To analyze receipt of opioids or benzodiazepines at time of ED discharge, we first conducted unadjusted analyses comparing the proportion of women versus men who received prescriptions for: 1) opioids and 2) benzodiazepines at the time of discharge from the ED using chi-square tests. These gender-based comparisons were compared in the overall sample and then in the sample stratified by cohort (EA and AA).

To assess whether confounders affected the treatment of pain in women vs. men, we performed multivariate logistic regression, using receipt of an opioid prescription as the outcome and gender as the primary predictor variable. Based on scientific plausibility of factors associated with opioid use for pain after MVC, the model was adjusted a priori for age, race (Black/non-Hispanic or white/non-Hispanic), highest level of education completed (less than high school, some college, completion of college or graduate school), income (divided into $20,000 increments), employment status (unemployed, student, part-time, full-time, disabled), body mass index (BMI), cigarette use (yes/no), baseline depression (measured on Center for Epidemiologic Depression (CES-D) scale), partner status (married, serious relationship and cohabitating, serious relationship and not cohabitating, no serious relationship), extent of damage to vehicle (none/minor, moderate, severe), seatbelt use (yes/no), speed of MVC, passenger vs. driver, moderate to severe axial pain, number of somatic symptoms, and peritraumatic distress. Variables were operationalized as above; speed of MVC was treated as a continuous variable. A similar multivariate logistic regression was then performed with receipt of benzodiazepines as the outcome, adjusting for the same factors. Race-by-gender interaction terms were tested in each model and kept based on significance determined in likelihood ratio testing. For all logistic regression models, adjusted odds ratios (OR) with 95% CI were reported. In all analyses, p-values < 0.05 were considered statistically significant. All statistical analyses were performed using Stata software v.14.0 (Stata Corporation, College Station, TX.)

RESULTS

In total, 1878 patients were included; 61.4% (n=1153) were women, 49.5% (n=930) were black, and overall median age was 32 (IQR 24–46). Table 1 describes demographic characteristics and collision characteristics by gender. Women and men were similar in terms of age and race yet differed with regard to factors including completed education, income, partner status, and cigarette use. In terms of collision characteristics, more women than men reported seatbelt use (91.8% vs. 84.0%), but women and men were similar with respect to the extent of vehicle damage and whether they were the driver or passenger.

Table 2 shows pain experiences in women compared with men. Overall, women and men were similar with respect to report of widespread pain, moderate to severe axial pain, and attitudes regarding likelihood of recovery. In contrast, women reported more somatic symptoms (3.9 vs. 3.3, p<0.001), and more women than men reported peritraumatic distress (59.7% vs. 42.5%, p,0.001) and “severe” symptoms on the pain catastrophizing scale (55.2% v. 27.5%, p=0.011).

Following stratification by race cohort (EA and AA) (Table 3), pain experience differed between women and men in the EA cohort but not in the AA cohort. Compared to EA men, EA women had more widespread pain, more moderate to severe axial pain, more somatic symptoms, more severe pain on the pain catastrophizing scale, and more peritraumatic distress. In the AA cohort, compared to men, women had more peritraumatic distress; all other pain experiences were similar by gender.

With respect to treatment of pain at ED discharge, in unadjusted analyses, similar proportions of women and men received a prescription for opioids (29.2% vs. 29.7%, p=0.84) (Table 2). Similar numbers of women and men also received benzodiazepines (9.3% vs. 11.6%, p=0.11) at time of discharge. Table 2 also shows that similar numbers of women vs. men were given opioids or benzodiazepines during their ED stay. In the sample stratified by cohort (EA and AA), there were no gender differences in the receipt of either opioid or benzodiazepine prescriptions in either cohort (Table 3). There was, however, a difference in receipt of opioids during the ED stay in the AA cohort but not the EA cohort (Table 3) in unadjusted analyses.

Table S1 displays the results of our multivariate analysis of receipt of an opioid prescription at discharge. After adjusting for demographic factors, collision characteristics, pain (moderate to severe axial pain), somatic symptoms, peritraumatic distress, and depression, women and men were equally likely to receive a prescription for opioids at the time of discharge (RR 0.83, 95%CI 0.58–1.19). Increasing age (RR 1.01, 95%CI 1.00–1.02) and moderate to severe axial pain (RR 1.95, 95%CI 1.40–2.75) increased the likelihood of receiving an opioid prescription, while black race (RR 0.19, 95%CI 0.07–0.50) and seatbelt use (RR 0.59, 95%CI 0.39–0.92) decreased the likelihood of receiving an opioid prescription. Table S2 shows the results of our multivariate analysis of receipt of a benzodiazepine prescription at discharge. After adjustment, women were less likely than men to receive benzodiazepines at discharge (RR 0.53, 95%CI 0.32–0.88). Other significant

predictors included BMI, partner status, and moderate to severe axial pain. Race-by-gender interaction terms were not significant in either of these logistic regression models.

DISCUSSION

In our analysis of patients with minor injuries seen in the ED after a MVC, pain experiences differed between women and men, specifically with respect to their acute psychological responses. More women reported psychological distress, depression, somatic symptoms, and pain catastrophizing compared with men. Though there were no differences in pain severity between women and men in the overall sample, white/Non-Hispanic women had more severe pain compared with white/Non-Hispanic men; no such gender difference existed in the Black/Non-Hispanic cohort; this suggests that there may in fact be differences in pain severity after MVC by gender, but that it differs by race. Despite gender differences in the experience of pain and the acute psychological response, women and men were equally likely to receive opioid pain medications at discharge after adjusting for pain, pain-related distress, various demographic factors, social determinants, and collision characteristics. It is possible that there were unmeasured differences between the EA and AA cohort and that the association between gender and receipt of pain medications at discharge differs across racial strata, though our preliminary analyses do not largely support this. Finally, women, however, were *less* likely to receive a prescription for benzodiazepines, a somewhat surprising finding given previous literature that women are more likely to be prescribed anxiolytics in both outpatient and ED settings.[21, 29]

Our finding that women were more likely to report psychological sequelae after a MVC is consistent with prior data showing that women and men differ with respect to their acute psychological responses to pain.[6, 10] Acute psychological responses to pain have the potential to cause more severe acute pain and may lead to an increased risk of persistent and/or chronic pain,[30, 31] which is known to be more common in women than men.[32, 33] It is critical for physicians to recognize and address such acute psychological responses during the ED visit by treating pain, providing reassurance, and factoring in psychosocial issues that may affect a patient's ability to cope with pain and distress following a MVC. Furthermore, some data have indicated that gender may affect the response to pharmacologic and non-pharmacologic interventions for pain,[34, 35] but this needs to be investigated further, especially with respect to reduction of post-traumatic distress and pain catastrophizing. Our findings, while showing no significant gender difference in use of prescription opioids upon ED discharge after MVC, suggest the need for future research investigating both reasons for more pain-related psychological distress in women as well as possible gender-specific interventions to prevent the development of psychological distress following MVCs. Future research should also evaluate long-term outcomes in women vs. men after MVC and how initial treatment in the ED may impact those outcomes and perhaps differentially with respect to men and women.

Despite more distress exhibited by women compared with men after MVCs, women in our study were less likely to receive benzodiazepines at discharge. It is plausible that benzodiazepines in this setting would likely be prescribed because of their muscle relaxant properties rather than their sedative or anxiolytic actions.[18] Our findings may differ from

previous studies that show higher rates of benzodiazepine use in women across a wide range of clinical indications[21] because our sample was limited to patients being seen for post-traumatic pain. Physicians may be less likely to use benzodiazepines for women with post-traumatic pain and distress if they believe the symptoms are time-limited, if the post-traumatic distress and anxiety is not recognized, or if they believe alternative interventions would be more effective. These hypotheses would have to be tested in future research.

Our findings also conflict to some degree with prior literature indicating that women are at risk for oligoanalgesia when being seen in the ED for pain-related conditions. For example, one study of almost 1000 patients with non-traumatic abdominal pain in the ED reported that even after adjusting for age, race, triage designation, and pain score, women were 13 to 25% less likely to receive opioid analgesia and had longer delays to administration of any pain medication.[15] Our findings that women and men were equally likely to receive opioids may reflect differences in treatment of pain due to other pain complaints versus post-traumatic musculoskeletal pain or perhaps practice differences in the enrolling sites.

Finally, though not the primary objective of this paper, we found that Black patients were less likely to receive opioid prescriptions. This is notable in light of data from a companion project on race and post-traumatic pain using CRASH data showing that participants in the AA cohort are over twice as likely to experience moderate to severe axial pain at 6 weeks post MVC and are also more likely to have more severe pain in the ED.[36] Other notable differences by gender in our study include differences in demographics and crash characteristics. For example, women were less likely to report seatbelt use, a factor which deceased the likelihood of opioid prescriptions at discharge. Our findings of gender differences in seatbelt use is consistent with prior data and could point to the need for gender-specific education efforts to promote seatbelt use.[37]

There are some limitations to our study. First, it is possible that the two cohorts had differences that affected our findings. For example, the two cohort studies (EA and AA) were conducted during different study periods (2009–2011 and 2012–2016); it is possible that the results would have differed if the cohorts were conducted simultaneously. In our study, Black race was associated with lower rates of opioid prescriptions; given that opioid prescription rates have risen in recent years It is possible that any difference by race was underestimated. We only accounted for opioid and/or benzodiazepine prescriptions written at the initial ED visit following the MVC, yet it is possible that some patients received prescriptions from other physicians or in other healthcare settings after the initial ED visit. We also did not have access to data on provider gender, which has been shown in some studies to have even more effect than patient gender on the treatment of pain in the ED.[38] Additional limitations include a potential lack of generalizability of our results to other geographic regions (i.e., the western U.S.) and possible selection bias due to lack of inclusion of non-English speaking patients. Finally, we did not have data on number of pain or benzodiazepine pills prescribed, which could potentially be different between women and men.

CONCLUSIONS

In our large, multicenter study of ED patients treated for minor MVC, there were gender differences in the acute psychological response to MVC with women reporting more psychological and somatic symptoms. Women and men were equally likely to receive opioid prescriptions at discharge in the overall sample even after adjusting for confounding factors.

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Table 1

Demographic and collision characteristics by gender

	Women (n=1153)	Men (n=725)	Difference (95%CI)
Patient Demographics			
Age	34.9 (34.2 – 35.7)	36.0 (35.1 – 37.0)	1.1 (−0.1 – 2.3)
Race (% black)	50.1 (578)	48.6 (352)	−1.6 (−6.2 – 3.1)
Income			
<$20,000	25.0 (243)	21.2 (127)	−3.8 (−8.1 – 0.4)
$20,000 to $40,000	28.2 (274)	20.7 (124)	−7.5 (−11.8 – −3.2)
$40,000 to $80,000	29.1 (283)	31.3 (188)	2.2 (−2.5 – 6.9)
>$80,000	17.7 (172)	26.8 (161)	9.1 (4.9 – 13.4)
Education complete			
High school or less	26.0 (299)	41.3 (297)	15.2 (10.8 – 19.6)
Some college	40.3 (463)	39.7 (286)	−0.6 (−5.1 – 4.0)
College/post-graduate level	33.7 (387)	19.0 (137)	−14.7 (−18.6 – −10.7)
Partner status			
Married	26.9 (310)	36.1 (261)	9.2 (4.9 – 13.5)
Serious relationship, not living together	17.4 (200)	14.7 (106)	−2.7 (−6.1 – 0.7)
Serious relationship, living together	15.0 (173)	12.7 (92)	−2.3 (−5.5 – 0.9)
No serious relationship	39.7 (457)	35.4 (256)	−4.3 (−8.7 – 0.2)
Employment status[+]			
Unemployed	15.6 (148)	14.6 (89)	−1.0 (−4.6 – 2.7)
Student	1.1 (10)	0.5 (3)	−0.6 (0.4 – 1.7)
Work part time	17.4 (165)	12.6 (77)	−4.7 (−8.3 – 1.2)
Work full time	64.9 (617)	71.6 (437)	6.8 (2.1 – 11.5)
Disabled	1.2 (11)	0.7 (4)	−0.5 (−1.4 – 0.4)
Cigarette use	23.2 (267)	31.9 (231)	8.7 (4.5 – 12.9)
Extent damage			
None/minor	28.5 (317)	29.3 (204)	0.8 (−3.5 – 5.1)
Moderate	43.8 (487)	43.6 (304)	−0.2 (−4.9 – 4.5)
Severe	27.7 (308)	27.1 (189)	−0.6 (−4.8 – 3.6)
Seatbelt	91.8 (1052)	84.0 (584)	−7.8 (−10.9 – −4.6)
Passenger vs driver	78.8 (909)	76.9 (552)	−2.0 (−5.8 – 1.9)

Table 2

Experience and treatment of pain after motor vehicle collision by gender

	Women	Men	P-value
Pain experience			
Widespread Pain	24.2 (21.7 – 26.7)	21.2 (18.3 – 24.2)	0.139
Moderate to severe axial pain	76.0 (73.5 – 78.4)	72.6 (69.3 – 75.8)	0.097
Number of somatic symptoms	3.9 (3.7 – 4.0)	3.3 (3.1 – 3.5)	<0.001
Pain catastrophizing scale			0.011
None	2.0 (1.4 – 3.0)	3.0 (2.0 – 4.5)	
Mild	9.4 (7.8 – 11.1)	11.7 (9.5 – 14.3)	
Moderate	33.5 (30.8 – 36.3)	37.8 (34.3 – 41.5)	
Severe	55.2 (52.2 – 58.0)	47.5 (43.8 – 51.2)	
Ces-D depression			
Yes	8.7 (7.0 – 10.3)	3.9 (2.5 – 5.3)	<0.001
No	91.3 (89.6 – 92.8)	96.1 (94.5 – 97.3)	<0.001
Peritraumatic distress (>20)	59.7 (56.8 – 62.5)	42.5 (38.9 – 46.2)	<0.001
Likelihood of recovery	89.0 (87.2 – 90.9)	89.7 (87.4 – 91.9)	0.678
Treatment			
During ED visit			
Proportion given opioids in the ED	20.6 (18.3 – 23.0)	17.8 (15.0 – 20.6)	0.130
Proportion given Benzos in the ED	6.4 (5.0 – 7.8)	6.3 (4.6 – 8.1)	0.950
At discharge			
Proportion given opioids discharge	29.2 (26.6 – 31.9)	29.7 (26.3 – 33.0)	0.843
Proportion given benzodiazepines at discharge	9.3 (7.6 – 11.0)	11.6 (9.3 – 13.9)	0.108

Continuous data are presented as median (interquartile range (IQR). Categorical data are displayed as proportions (%) and 95% confidence intervals unless otherwise specified. P<0.05 was considered statistically significant.

Table 3

Pain Experience and Treatment of Pain in Sample Stratified by Race and Gender

	AA (n=930)			EA (n=948)		
	Women	**Men**	**p-value**	**Women**	**Men**	**p-value**
Pain experience						
Widespread Pain	165 (28.5)	98 (27.8)	0.817	114 (19.8)	56 (15.0)	0.059
Moderate to severe axial pain	462 (79.9)	280 (79.5)	0.887	414 (72.0)	246 (66.0)	0.048
Number of somatic symptoms	3.7 (2.8)	3.4 (2.9)	0.067	4.1 (4.1)	3.3 (2.7)	<0.001
Pain catastrophizing scale			0.297			0.049
None	2 (7.0)	2 (5.8)		19 (3.4)	19 (5.3)	
Mild	19 (4.2)	19 (5.6)		82 (14.6)	63 (17.5)	
Moderate	103 (25.4)	103 (30.1)		234 (41.6)	163 (45.2)	
Severe	218 (69.6)	397 (63.7)		228 (40.5)	116 (32.1)	
Depression (per CES-D)	23 (4.0)	6 (1.7)	0.053	77 (13.3)	22 (5.9)	<0.001
Peritraumatic distress	376 (65.7)	172(49.6)	<0.001	302(53.5)	133(35.9)	<0.001
Likelihood of recovery	478 (85.2)	290 (84.8)	0.867	529 (92.8)	351 (94.1)	0.436
Treatment						
During ED visit						
Proportion given opioids in the ED	128 (22.1)	46 (13.1)	<0.001	110 (19.1)	83 (22.2)	0.244
Proportion given Benzodiazepines in the ED	35 (6.1)	15 (4.3)	0.239	39 (6.8)	31 (8.3)	0.379
At discharge						
Proportion given opioids discharge	135 (23.4)	75 (21.3)	0.468	202 (35.1)	140 (37.5)	0.452
Proportion given benzodiazepines at discharge	37 (6.4)	32 (9.1)	0.129	70 (12.2)	52 (13.9)	0.427

AA: African-American, EA: European-American

Continuous data are presented as median (interquartile range (IQR). Categorical data are displayed as frequencies (n) and proportions (%)unless otherwise specified. P<0.05 was considered statistically significant.